REMARKS

Applicant has amended the claims to overcome the section 112 rejections, to overcome any indefiniteness and to place the claims in condition for allowance. Applicant has amended the Abstract to better describe the present invention while meeting the word length requirements. As presently amended, Applicant avers that the combinations of references suggested by the Office Action do not make the present invention obvious to a person having ordinary skill in the art.

The Office Action has rejected claims 1-24, 29, and 33-36 under 35 USC Section 103 (a) as being unpatentable over Woodruff (US patent no. 5,420,681) in view of McNeil et al (US Pub. No. 2004/0202577). Specifically, the office action notes that Woodruff, in Fig. 2, shows "modularly expandable in one axis or a plurality of axes in order to acquire... from *a* line or area of any desired size..." Woodruff describes a modular multiple spectrometer, however, in Woodruff each module detects a different part of the spectrum (specifically stated in Woodruff col 1- line 55, and required in claim 1). Also in col 3, lines 2-6, Woodruff notes that the mirror "similarly directs light from the scene" into the other spectrometers. Clearly, the three units shown in Fig.2 of Woodruff measure different parts of the spectrum associated with the same scan width (10° view) (see col 3, line 63). This is not modularly expandable in the width of the area scanned, and has no feature allowing gap-free scanning of the breadth of a field as in the present invention as amended.

With respect to the McNeil disclosure, McNeil discloses binning of pixels in the figures at the office action referenced paragraphs (70 and 121-124) according to rows and columns. However, Applicant notes that this does not allow "unlimited flexibility" of binning, as presently claimed; which implies that not only orthogonal areas can be binned, but rather any shape or distribution of areas. An apparatus made in accordance with McNeil would have only a single camera, as explained in McNeil, and therefore the novel concept of each photoelectric conversion device independently having different

functions can't be implemented. While binning is one method of optimizing SNR, other operating modes are useful for barcode reading, focusing, etc. The present invention, as now claimed, further shows a plurality of photoelectric conversion devices and shows that each segment of the imaged line is projected onto an independent photoelectric conversion device. What Woodruff describes projects the entire line entering slit 24 (width of view) onto each of the imaging devices. Again the width of the line is not modularly expandable while conserving resolution and scan speed.

With respect to Claim 2, in the present invention the overlapping regions are not the same region, but regions which are adjacent to each other. In Woodruff, however, the same line is projected into all modules such that separate spectral regions can be acquired (see again Woodruff, col. 1, line 55). The optics disclosed by Woodruff do not attempt to compensate for sensor array gaps by overlapping the projection of segments of a line, but serve the function of spectrally dispersing the same field into various wavelength ranges. The present invention shows a patentantly distinct system.

With respect to Claim 3, there is no mention in Woodruff of acquiring adjacent sections of a field. If, as the office action notes, the light entering slit 24 can be considered segments, also with gaps[1], then again the width of the line is not modularly expandable while conserving resolution and scan speed; and therefore the teachings of the present invention cannot be made obvious by the combination.

Applicant notes that Claims 4-36 are dependent claims and as the independent claim is not made obvious by the cited combination, the dependent claims, which add limitations, cannot be obvious either. However, in order to further distinguish these dependent claims Applicant notes the following:

In Claim 7 it is notable that McNeil only discloses binning and not the other features claimed. With respect to Claim 8, Applicant avers that Woodruff does not present a micro-optical approach and therefore differs from the teachings of the present

[1] However, Applicant does not agree that this is a fair reading of Woodruff.

invention. With respect to Claim 15, Applicant notes that McNeil, in Fig. 2B, 423 and 258, depicts a traditional shutter for the excitation, and a lens to focus onto the target. While these can be considered "means of spatial variation", they are not capable of creating a desired or programmable intensity pattern on a line or area as claimed in the present invention.

With respect to Claim 18 there is shown there that the functionality of a photoelectric device is variable, corresponding to the spatial location on the line or area that it is imaging. In Woodruff, the functionality of measuring a different spectral region is not correlated with a spatial location on the line being measured. With respect to Claim 20 Woodruff Fig. 2 does not depict modular expansion in the direction to measure increasing lengths of a line. With respect to Claim 21 Woodruff, at col 1, lines 35-55, does not describe that the apparatus can provide sub-image(s) of the total area scanned.

With respect to Claim 24, Woodruff drawing item 48a is a grating, and the disclosure is silent about whether it is a binary grating or if an apparatus made in accordance with the teachings of Woodruff can collect odd and even spectral orders. In Claim 29 the entire apparatus is moved with respect to the target being measured. Woodruff does not disclose this, instead 26 is a scanning mirror, which does not move the apparatus nor the target, but allows a different way of generating an image of the target.

The Office Action has rejected claims 1-24, 29, 33-36 and 43-49 under 35 USC Section 103 (a) as being unpatentable over Hing (WO 02/25934) in view of Woodruff (US patent no. 5,420,681). Applicant reiterates its understandings concerning the teachings of Woodruff and notes that, as noted above, the use of Woodruff is misplaced with respect to the claims as presently amended. Further, Applicant disagrees with the contention that Woodruff Fig.2 depicts modular expansion in the line width, and that the mirror 26 of the Woodruff disclosure separates light into three spectrometers. Woodruff never mentions that mirror 26 "*separates* light into the three spectrometers" - there is no mention of "steering" different parts of the line or field into corresponding spectrometers.

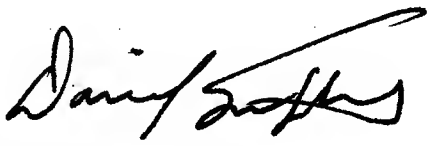
The office action is using hindsight, based on the teachings of the present invention to suggest that Woodruff teaches this when clearly it does not. There is also no mention in Woodruff that gratings 48a "separate light into a *plurality of segments"* where the present invention defines the word "segments" to mean parts of the line to be measured.
As the noted by the office action, Hing, in the cited reference, does not mention any capability of expandability in one or more axes to measure a line of any width. The teachings of Hing do not add the elements missing in Woodruff to make the present application obvious.

Further, with respect to Claim 2, the office action again assumes that Woodruff's mirror 26 separates segments of the line. This is not mentioned by Woodruff. One can imagine that since the entire line is projected into every module of Woodruff's apparatus, that this constitutes a "plurality of overlapping regions of the line". The present invention however teaches that the imaging devices receive the light from different segments of the line, such that the spectrometer is expandable to measure unlimited width of the line.
Yes. for all of the above there is overlap with my previous patent in these dependent claims. The remaining dependent claims are not made obvious for the reasons previously stated.

As presently amended, the device and method of the present invention is not taught by any combination of the cited references. In view of the foregoing remarks and amendments, it is believed that the subject application is now in condition for allowance, and an early Notice of Allowance is respectfully requested. Applicant encloses herewith a petition for a two month extension of time to respond and authorizes the Commissioner to charge the fee for the petition to its attorney's deposit account (No. 23-0920). It is believed that no other fee is needed, however, should it be determined that any fees are necessary the Commissioner is hereby authorized to charge any additional fee which may be required for this application under 37 C.F.R. §§ 1.16-1.18, including but not limited to the issue fee, or credit any overpayment, to Deposit Account No. 23-0920. Further, should any other petition be required with respect to this reply and amendment, the

Commissioner is respectfully requested to treat this paper as the necessary petition or petitions and to charge the petition fee(s) to the above noted deposit account.

Respectfully submitted



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